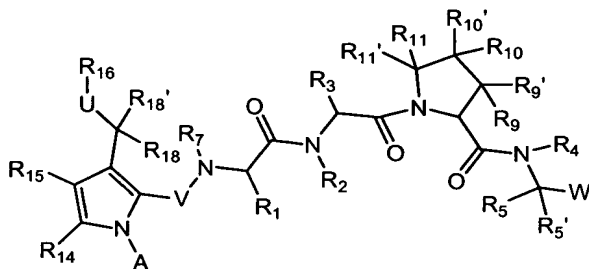


CLAIMS

We claim:

1. A compound of formula I:



I

or a pharmaceutically acceptable salt thereof,

wherein:

R₉ and R_{9'} are each independently:

hydrogen-,

(C1-C12)-aliphatic-,

(C3-C10)-cycloalkyl- or -cycloalkenyl-,

[(C3-C10)-cycloalkyl or -cycloalkenyl]-(C1-C12)-
aliphatic-,

(C6-C10)-aryl-,

(C6-C10)-aryl-(C1-C12)aliphatic-,

(C3-C10)-heterocyclyl-,

(C3-C10)-heterocyclyl-(C1-C12)aliphatic-,

(C5-C10)-heteroaryl-, or

(C5-C10)-heteroaryl-(C1-C12)-aliphatic-;

wherein up to three aliphatic carbon atoms in each
of R₉ and R_{9'} are optionally replaced by O, N, NH, S,
SO, or SO₂ in a chemically stable arrangement;

wherein each of R₉ and R_{9'} is independently and
optionally substituted with up to 3 substituents
independently selected from J;

J is halogen, -OR', -NO₂, -CN, -CF₃, -OCF₃, -R', oxo,
thioxo, =N(R'), =N(OR'), 1,2-methylenedioxy, 1,2-
ethylenedioxy, -N(R')₂, -SR', -SOR', -SO₂R', -SO₂N(R')₂,

-SO₃R', -C(O)R', -C(O)C(O)R', -C(O)C(O)OR',
-C(O)C(O)N(R')₂, -C(O)CH₂C(O)R', -C(S)R', -C(S)OR',
-C(O)OR', -OC(O)R', -C(O)N(R')₂, -OC(O)N(R')₂,
-C(S)N(R')₂, -(CH₂)₀₋₂NHC(O)R', -N(R')N(R')COR',
-N(R')N(R')C(O)OR', -N(R')N(R')CON(R')₂, -N(R')SO₂R',
-N(R')SO₂N(R')₂, -N(R')C(O)OR', -N(R')C(O)R',
-N(R')C(S)R', -N(R')C(O)N(R')₂, -N(R')C(S)N(R')₂,
-N(COR')COR', -N(OR')R', -C(=NH)N(R')₂, -C(O)N(OR')R',
-C(=NOR')R', -OP(O)(OR')₂, -P(O)(R')₂, -P(O)(OR')₂, or
-P(O)(H)(OR'); wherein;

each R' is independently selected from:

hydrogen-,
(C1-C12)-aliphatic-,
(C3-C10)-cycloalkyl- or -cycloalkenyl-,
[(C3-C10)-cycloalkyl or -cycloalkenyl]-(C1-C12)-
aliphatic-,
(C6-C10)-aryl-,
(C6-C10)-aryl-(C1-C12)aliphatic-,
(C3-C10)-heterocyclyl-,
(C3-C10)-heterocyclyl-(C1-C12)aliphatic-,
(C5-C10)-heteroaryl-, and
(C5-C10)-heteroaryl-(C1-C12)-aliphatic-;

wherein up to 5 atoms in R' are optionally and
independently substituted with J;

wherein two R' groups bound to the same atom
optionally form a 5- to 6-membered aromatic or a 3-
to 7-membered saturated or partially unsaturated
ring system having up to 3 heteroatoms independently
selected from N, NH, O, S, SO, and SO₂, wherein said
ring is optionally fused to a (C6-C10)aryl,
(C5-C10)heteroaryl, (C3-C10)cycloalkyl, or a
(C3-C10)heterocyclyl, wherein any ring has up to 3
substituents selected independently from J;

R₁₀, R_{10'}, R₁₁, and R_{11'} are each independently:

hydrogen-,

(C1-C12)-aliphatic-,

(C3-C10)-cycloalkyl- or -cycloalkenyl-,

[(C3-C10)-cycloalkyl or -cycloalkenyl]-(C1-C12)-
aliphatic-,

(C6-C10)-aryl-,

(C6-C10)-aryl-(C1-C12)aliphatic-,

(C3-C10)-heterocyclyl-,

(C3-C10)-heterocyclyl-(C1-C12)aliphatic-,

(C5-C10)-heteroaryl-, or

(C5-C10)-heteroaryl-(C1-C12)-aliphatic-;

wherein any ring is optionally fused to a
(C6-C10)aryl, (C5-C10)heteroaryl, (C3-C10)cycloalkyl,
or (C3-C10)heterocyclyl;

wherein up to 3 aliphatic carbon atoms in each of
R₁₀, R_{10'}, R₁₁, and R_{11'} are optionally replaced by a
heteroatom selected from O, NH, S, SO, or SO₂ in a
chemically stable arrangement;

wherein each of R₁₀, R_{10'}, R₁₁, and R_{11'} is
independently and optionally substituted with up to 3
substituents independently selected from J; or

R₁₀ is -OR' and R_{10'} is H; or

R₁₀ and R_{10'} are both -OR' or -SR'; or

R₁₀ and R_{10'} are both fluorine; or

R₁₀ and R_{10'} are optionally taken together with the carbon
atom to which they are bound to form a 5- to 7-membered
saturated or partially unsaturated ring system;

wherein the R₁₀ and R_{10'} atoms bound to the carbon
atom are independently C(H), N, NH, O, S, SO, or SO₂;

wherein said ring optionally contains up to 4
heteroatoms independently selected from N, NH, O, S,
SO, and SO₂;

wherein any atom is optionally singly or multiply substituted with up to 2 substituents selected independently from J; and

wherein said ring is optionally fused to a second ring selected from (C6-C10)aryl, (C5-C10)heteroaryl, (C3-C10)cycloalkyl, and a (C3-C10)heterocyclyl, wherein said second ring has up to 3 substituents selected independently from J; or

R₉ and R₁₀ are optionally taken together with the ring atoms to which they are bound to form a 5- to 6-membered aromatic or a 3- to 7-membered saturated or partially unsaturated ring system up to 3 heteroatoms independently selected from N, NH, O, S, SO, or SO₂; wherein said ring system is optionally substituted with up to 3 substituents selected independently from J; or

R₁₀ and R₁₁ are optionally taken together with the ring atoms to which they are bound to form a 5- to 6-membered aromatic or a 3- to 7-membered saturated or partially unsaturated ring system having up to 3 heteroatoms independently selected from N, NH, O, S, SO, or SO₂; wherein said ring is optionally substituted with up to 3 substituents selected independently from J; or

R₉ and R₁₁ are optionally taken together with the ring atoms to which they are bound to form a bridged bicyclic saturated or partially unsaturated carbocyclic or heterocyclic ring system containing up to 10 atoms; wherein said ring system is optionally substituted with up to 3 substituents selected independently from J; wherein each heteroatom in the heterocyclic ring system is selected from the group consisting of N, NH, O, S, SO, or SO₂;

R₁ and R₃ are each independently:
(C1-C12)-aliphatic-,

(C3-C10)-cycloalkyl- or -cycloalkenyl-,
[(C3-C10)-cycloalkyl- or -cycloalkenyl]-(C1-C12)-
aliphatic-,
(C6-C10)-aryl-(C1-C12)aliphatic-, or
(C5-C10)-heteroaryl-(C1-C12)-aliphatic-;

wherein up to 3 aliphatic carbon atoms in each of R₁
and R₃ are optionally replaced by a heteroatom selected
from O, N, NH, S, SO, or SO₂ in a chemically stable
arrangement;

wherein each of R₁ and R₃ is independently and
optionally substituted with up to 3 substituents
independently selected from J;

R₂, R₄, and R₇ are each independently:

hydrogen-,
(C1-C12)-aliphatic-,
(C3-C10)-cycloalkyl-(C1-C12)-aliphatic-, or
(C6-C10)-aryl-(C1-C12)-aliphatic-;

wherein up to two aliphatic carbon atoms in each of
R₂, R₄, and R₇ are optionally replaced by a heteroatom
selected from O, N, NH, S, SO, and SO₂ in a chemically
stable arrangement;

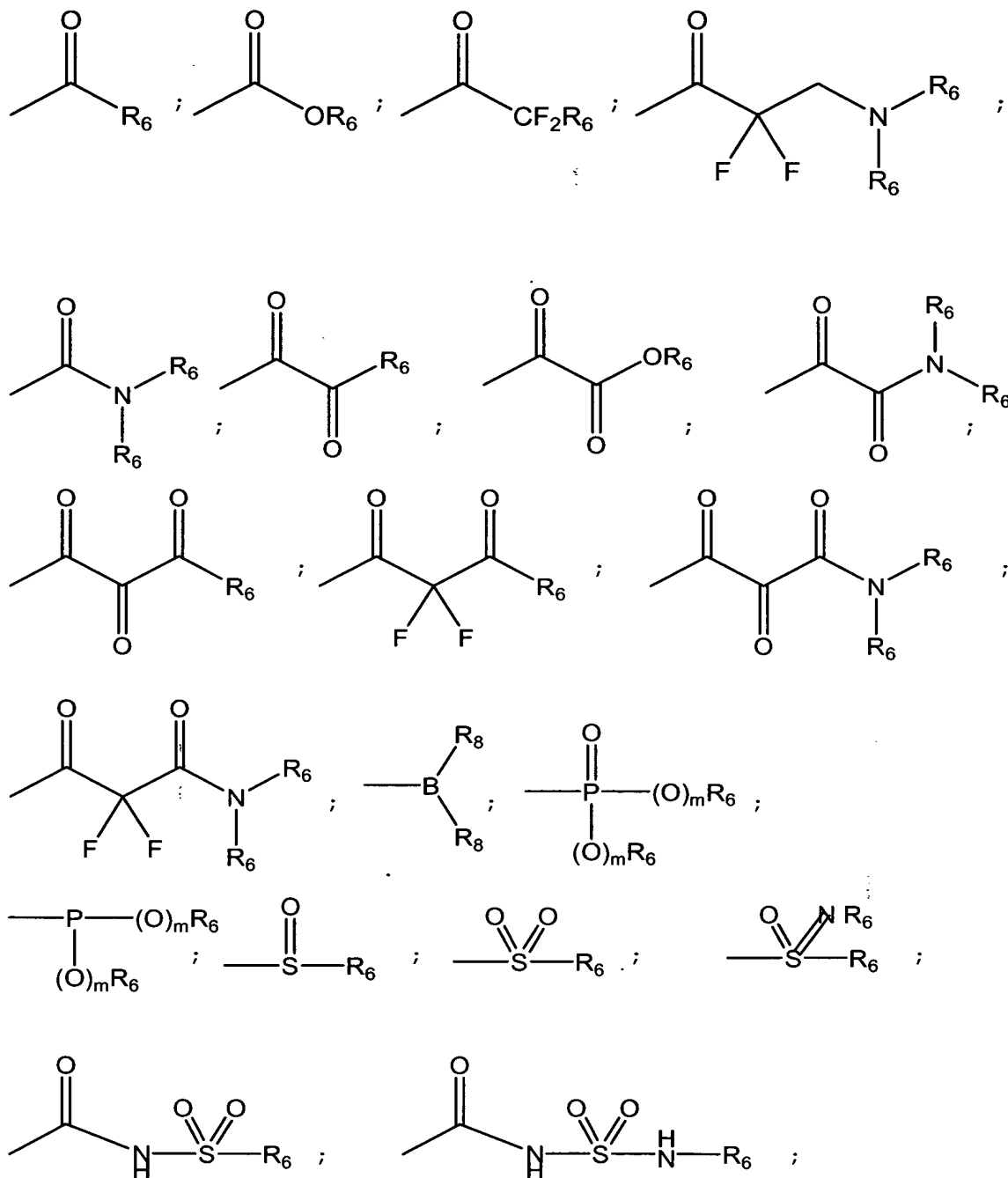
wherein each of R₂, R₄, and R₇ is optionally
substituted with up to 3 substituents independently
selected from J;

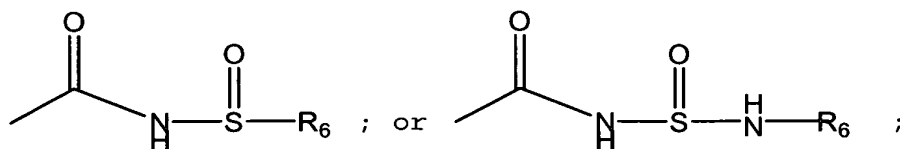
R₅ and R_{5'} are each independently hydrogen or (C1-C12)-
aliphatic, wherein any hydrogen is optionally replaced
with halogen; wherein any terminal carbon atom of R₅ is
optionally substituted with sulfhydryl or hydroxy; or
R₅ is Ph or -CH₂Ph and R_{5'} is H, wherein said Ph or
-CH₂Ph group is optionally substituted with up to 3
substituents independently selected from J; or

R₅ and R_{5'} together with the atom to which they are bound
optionally form a 3- to 6-membered saturated or
partially unsaturated ring having up to 2 heteroatoms

selected from N, NH, O, SO, and SO₂; wherein said ring is optionally substituted with up to 2 substituents selected independently from J;

W is:





wherein m is 0 or 1;

wherein each R₆ is independently:

hydrogen-,

(C₁-C₁₂)-aliphatic-,

(C₆-C₁₀)-aryl-,

(C₆-C₁₀)-aryl-(C₁-C₁₂)aliphatic-,

(C₃-C₁₀)-cycloalkyl- or cycloalkenyl-,

[(C₃-C₁₀)-cycloalkyl- or cycloalkenyl]-(C₁-C₁₂)-aliphatic-,

(C₃-C₁₀)-heterocyclyl-,

(C₃-C₁₀)-heterocyclyl-(C₁-C₁₂)-aliphatic-,

(C₅-C₁₀)-heteroaryl-, or

(C₅-C₁₀)-heteroaryl-(C₁-C₁₂)-aliphatic-;

wherein up to 3 aliphatic carbon atoms in each R₆ is optionally replaced by a heteroatom selected from O, NH, S, SO, or SO₂ in a chemically stable arrangement;

wherein R₆ is optionally substituted with up to 3 J substituents; or

two R₆ groups, together with the nitrogen atom to which they are bound, optionally form a 5- to 6-membered aromatic or a 3- to 7-membered saturated or partially unsaturated ring system having up to 3 heteroatoms independently selected from N, NH, O, S, SO, and SO₂, wherein said ring is optionally fused to a (C₆-C₁₀)aryl, (C₅-C₁₀)heteroaryl, (C₃-C₁₀)cycloalkyl, or a (C₃-C₁₀)heterocyclyl, wherein any ring has up to 3 substituents selected independently from J;

wherein each R₈ is independently -OR'; or the R₈ groups together with the boron atom, is a (C₃-C₁₀)-membered heterocyclic ring having in addition to the

boron up to 3 additional heteroatoms selected from N, NR', O, SO, and SO₂;

V is -C(O)-, -C(S)-, -S(O)-, or -S(O)₂-;

A is hydrogen or -C(R₁₂)(R_{12'})-T-R₁₃;

T is oxygen or a bond;

R₁₂ and R_{12'} are each independently:

hydrogen-, or

(C1-C6)-aliphatic-;

wherein up to two aliphatic carbon atoms in each of R₁₂ and R_{12'} are optionally replaced by a heteroatom selected from O, N, NH, S, SO, and SO₂ in a chemically stable arrangement; or

R₁₂ is absent and R_{12'} is =O;

R₁₃ is -C(O)R', -P(O)(OR')₂, -SO₃R', -R', or R₁₉;

R₁₉ is:

hydrogen,

(C1-C12)-aliphatic-,

(C6-C10)-aryl-(C1-C12)aliphatic-, or

(C5-C10)-heteroaryl-(C1-C12)-aliphatic-;

wherein up to 3 aliphatic carbon atoms in each R₁₉ is optionally replaced by a heteroatom selected from O, NR₁₉, S, SO, or SO₂ in a chemically stable arrangement;

wherein up to 3 aliphatic carbon atoms in each R₁₉ is optionally replaced with -C(O)-;

wherein R₁₉ is optionally substituted with up to 3 J substituents;

wherein any NR₁₉, taken together with the nitrogen and a carbon adjacent to the nitrogen, optionally forms a 5- to 7-membered ring system, wherein said ring system optionally contains up to three additional heteroatoms selected from O, N, NH, S, SO, and SO₂ in a chemically stable arrangement;

R₁₄ and R₁₅ are independently halogen, -OR', -OC(O)N(R')₂, -NO₂, -CN, -CF₃, -OCF₃, -R', 1,2-methylenedioxy, 1,2-

ethylenedioxy, $-N(R')_2$, $-SR'$, $-SOR'$, $-SO_2R'$, $-SO_2N(R')_2$,
 $-SO_3R'$, $-C(O)R'$, $-C(O)C(O)R'$, $-C(O)CH_2C(O)R'$, $-C(S)R'$,
 $-C(O)OR'$, $-OC(O)R'$, $-C(O)N(R')_2$, $-OC(O)N(R')_2$,
 $-C(S)N(R')_2$, or $-(CH_2)_{0-2}NHC(O)R'$;

R_{16} is R' , $-C(O)R'$, $-P(O)(OR')_2$, or $-SO_3R'$;

U is O, N, or a bond; and

R_{18} and $R_{18'}$ are optionally taken together with the carbon atom to which they are bound to form a 5- to 7-membered saturated or partially unsaturated ring system;

wherein the R_{18} and $R_{18'}$ atoms bound to the carbon atom are independently O or N;

wherein said ring optionally contains up to 1 additional heteroatom selected from N, NH, O, S, SO, and SO_2 ;

wherein any substitutable atom is optionally singly or multiply substituted with up to 2 substituents selected independently from J;

wherein said ring is optionally fused to a second ring selected from (C6-C10)aryl, (C5-C10)heteroaryl, (C3-C10)cycloalkyl, and a (C3-C10)heterocyclyl, wherein said second ring has up to 3 substituents selected independently from J;

provided that when R_{18} and $R_{18'}$ are optionally taken together with the carbon atom to which they are bound to form a 5- to 7-membered saturated or partially unsaturated ring system, then R_{16} is R' ; or

$R_{18'}$ is $=O$, $=CH_2$, $=N(R')$, or $=N(OR')$ and R_{18} is absent, provided that when R_{18} is absent and $R_{18'}$ is $=CH_2$, then U is oxygen; and provided that when R_{18} is absent and $R_{18'}$ is $=O$, $=N(R')$ or $=N(OR')$, then U is a bond and R_{16} is R' .

2. The compound according to claim 1, wherein V is $-C(O)-$.

3. The compound according to claim 2, wherein:

A is $-C(R_{12})(R_{12'})-T-R_{13}$;

R_{12} and $R_{12'}$ are both hydrogen;

T is oxygen;

R_{13} is $-C(O)R'$, $-P(O)(OR')_2$, $-SO_3R'$, or $-R'$;

R_{14} and R_{15} are both $-R'$;

$R_{18'}$ is $=O$ and R_{18} is absent;

U is a bond; and

R_{16} is R' , wherein R' is selected from:

(C1-C12)-aliphatic-,

(C3-C10)-cycloalkyl- or -cycloalkenyl-,

[(C3-C10)-cycloalkyl or -cycloalkenyl]-(C1-C12)-
aliphatic-;

wherein up to 5 atoms in R' are optionally and
independently substituted with J.

4. The compound according to claim 3, wherein:

R_{13} is $-C(O)R'$, $-P(O)(OR')_2$, or $-R'$;

R_{14} and R_{15} are both $-R'$ and R' is (C1-C12)-aliphatic-; and

R_{16} is R' , wherein R' is (C1-C12)-aliphatic-.

5. The compound according to claim 2, wherein:

A is $-C(R_{12})(R_{12'})-T-R_{13}$;

R_{12} is hydrogen and $R_{12'}$ is (C1-C6)-aliphatic-;

wherein up to two aliphatic carbon atoms in $R_{12'}$ are
optionally replaced by a heteroatom selected from O, N,
NH, S, SO, and SO_2 in a chemically stable arrangement;

T is oxygen;

R_{13} is $-C(O)R'$, $-P(O)(OR')_2$, $-SO_3R'$, or $-R'$;

R_{14} and R_{15} are both $-R'$;

$R_{18'}$ is $=O$ and R_{18} is absent;

U is a bond; and

R_{16} is R' , wherein R' is selected from:

(C1-C12)-aliphatic-,
(C3-C10)-cycloalkyl- or -cycloalkenyl-,
[(C3-C10)-cycloalkyl or -cycloalkenyl]-(C1-C12)-
aliphatic-;

wherein up to 5 atoms in R' are optionally and
independently substituted with J.

6. The compound according to claim 5, wherein:
R₁₃ is -C(O)R', -P(O)(OR')₂, or -R';
R₁₄ and R₁₅ are both -R' and R' is (C1-C12)-aliphatic-;
R₁₆ is R', wherein R' is (C1-C12)-aliphatic-;

7. The compound according to claim 2, wherein:
A is -C(R₁₂)(R_{12'})-T-R₁₃;
R₁₂ is absent and R_{12'} is =O;
T is oxygen or a bond;
R₁₃ is -R₁₉;
R₁₄ and R₁₅ are both -R';
R_{18'} is =O and R₁₈ is absent;
U is a bond; and
R₁₆ is R', wherein R' is selected from:

(C1-C12)-aliphatic-,
(C3-C10)-cycloalkyl- or -cycloalkenyl-,
[(C3-C10)-cycloalkyl or -cycloalkenyl]-(C1-C12)-
aliphatic-;

wherein up to 5 atoms in R' are optionally and
independently substituted with J.

8. The compound according to claim 2, wherein:
R_{18'} is =CH₂, and R₁₈ is absent;
U is oxygen;
R₁₆ is R', -C(O)R', -P(O)(OR')₂, or -SO₃R';
R₁₄ and R₁₅ are both -R'; and
A is hydrogen.

9. The compound according to claim 8, wherein:
R₁₆ is R', -C(O)R', or -P(O)(OR')₂;
R₁₄ and R₁₅ are both -R' and R' is (C1-C12)-aliphatic-.

10. The compound according to claim 2, wherein:
R₁₈' is =N(R') or =N(OR') and R₁₈ is absent;
5 U is a bond;
R₁₆ is R';
R₁₄ and R₁₅ are both -R'; and
A is hydrogen.

11. The compound according to claim 10, wherein:
10 R₁₄ and R₁₅ are both -R' and R' is (C1-C12)-aliphatic-.

12. The compound according to claim 2, wherein:
R₁₈ and R₁₈' are optionally taken together with the carbon
atom to which they are bound to form a 5- to 7-membered
saturated or partially unsaturated ring system;
wherein the R₁₈ and R₁₈' atoms bound to the carbon
atom are independently O or N;
wherein said ring optionally contains up to 1
additional heteroatom selected from N, NH, O, S, SO,
and SO₂;
wherein any substitutable atom is optionally singly
or multiply substituted with up to 2 substituents
selected independently from J;
wherein said ring is optionally fused to a second
ring selected from (C6-C10)aryl, (C5-C10)heteroaryl,
15 (C3-C10)cycloalkyl, and a (C3-C10)heterocyclyl, wherein
said second ring has up to 3 substituents selected
independently from J;
U is a bond;
R₁₆ is R';

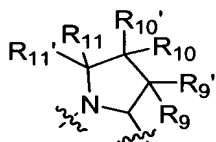
R₁₄ and R₁₅ are both -R'; and
A is hydrogen.

13. The compound according to claim 12;
wherein the R₁₈ and R_{18'} atoms bound to the carbon
atom are O;
wherein said ring optionally contains up to 1
additional oxygen atom.

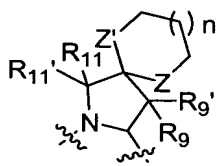
5 14. The compound according to any one of claims 1-
13, wherein R₁₄ and R₁₅ are both -R' and R' is
(C1-C6)-aliphatic-.

10 15. The compound according to claim 14, wherein R₁₄
and R₁₅ are both methyl.

16. The compound according to any one of claims 1-
15, wherein the



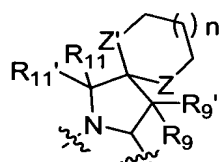
radical is:



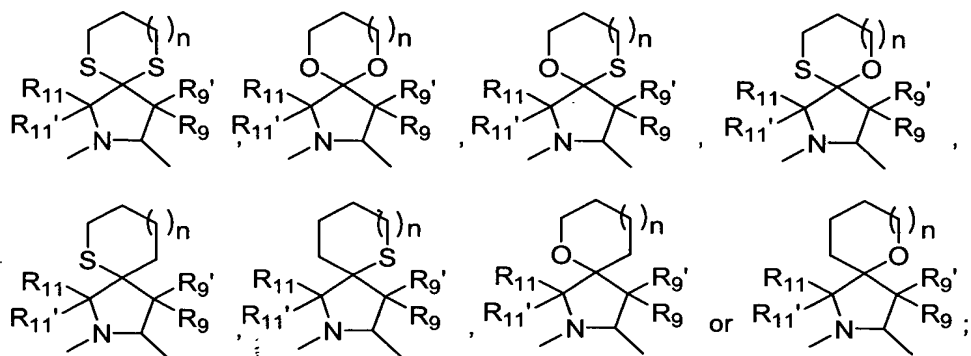
wherein:

n is 0, 1, or 2;
Z and Z' are independently C(H), N, NH, O, or S;
R₉, R_{9'}, R₁₁, and R_{11'} are as defined in claim 1; and
the spirocyclic ring containing Z and Z' is
optionally substituted with up to 3 J substituents,
wherein J is as defined in claim 1.

17. The compound according to claim 16, wherein:



radical is:



wherein:

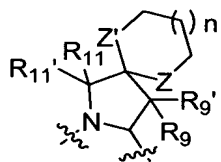
R_{11} and $R_{11'}$ are both H;

n is 0, 1, or 2;

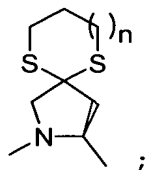
R_9 and $R_{9'}$ are as defined in claim 1; and

the spirocyclic ring containing Z and Z' is optionally substituted with up to 3 J substituents, wherein J is as defined in claim 1.

18. The compound according to claim 17, wherein the



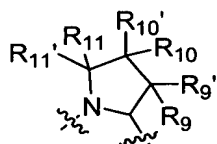
radical is:



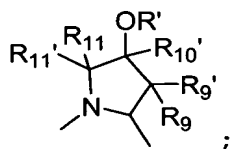
wherein:

n is 0 or 1.

19. The compound according to any one of claims 1-15, wherein the



radical is:



wherein:

R₉, R_{9'}, R_{10'}, R₁₁, and R_{11'} are as defined in claim 1;

and

R' is:

(C6-C10)-aryl-,

(C6-C10)-aryl-(C1-C12)aliphatic-,

(C3-C10)-heterocyclyl-,

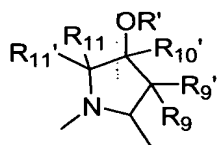
(C3-C10)-heterocyclyl-(C1-C12)aliphatic-,

(C5-C10)-heteroaryl-, or

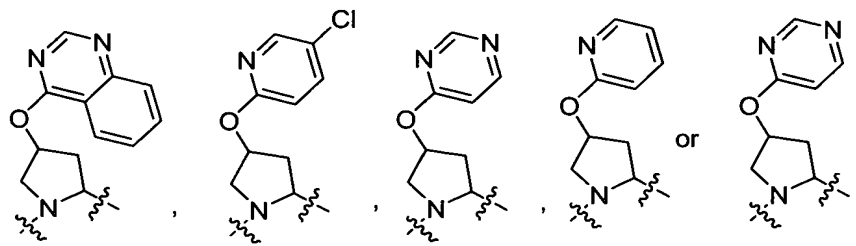
(C5-C10)-heteroaryl-(C1-C12)-aliphatic-;

wherein up to 5 atoms in R' are optionally and independently substituted with J.

20. The compound according to claim 19, wherein the

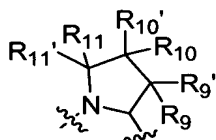


radical is:

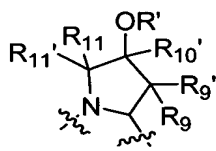


wherein the R' ring is optionally substituted with up to 5 substituents independently selected from J.

21. The compound according to any one of claims 1-15, wherein the



radical is:



;

wherein:

R₉, R_{9'}, R_{10'}, R₁₁, and R_{11'} are as defined in claim 1; and

R' is selected from:

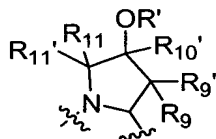
(C6-C10)-aryl-(C1-C12)aliphatic-,

(C3-C10)-heterocyclyl-(C1-C12)aliphatic-, and

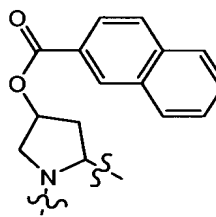
(C5-C10)-heteroaryl-(C1-C12)-aliphatic-;

wherein up to 5 atoms in R' are optionally and independently substituted with J.

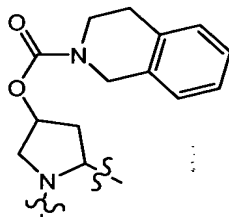
22. The compound according to claim 21, wherein the



radical is:

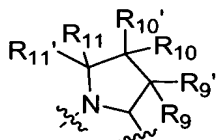


or



;

23. The compound according to any one of claims 1-15, wherein in the



radical

R₉, R₁₀, R_{10'}, R₁₁, and R_{11'} are as defined in claim 1;

and

R_{9'} is:

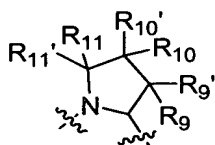
(C1-C12)-aliphatic-,

(C3-C10)-cycloalkyl- or -cycloalkenyl-;

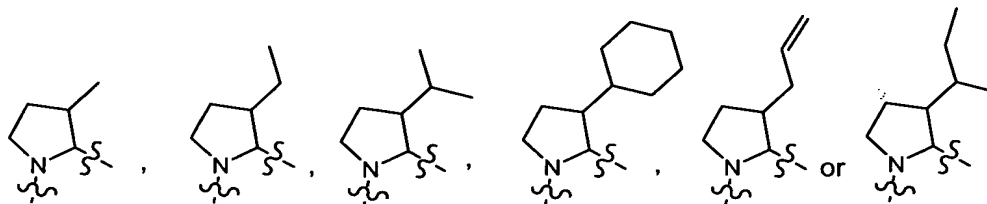
wherein up to three aliphatic carbon atoms in R₉ may be replaced by O, N, NH, S, SO, or SO₂; and

wherein R₉ is independently and optionally substituted with up to 3 substituents independently selected from J.

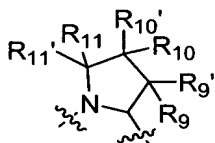
24. The compound according to claim 23, wherein the



radical is:



25. The compound according to any one of claims 1-15, wherein in the



radical

R₉, R₉', R₁₀, R₁₀', and R₁₁ are H; and

R₁₁' is:

(C1-C12)-aliphatic-,

5 (C3-C10)-cycloalkyl- or -cycloalkenyl-,

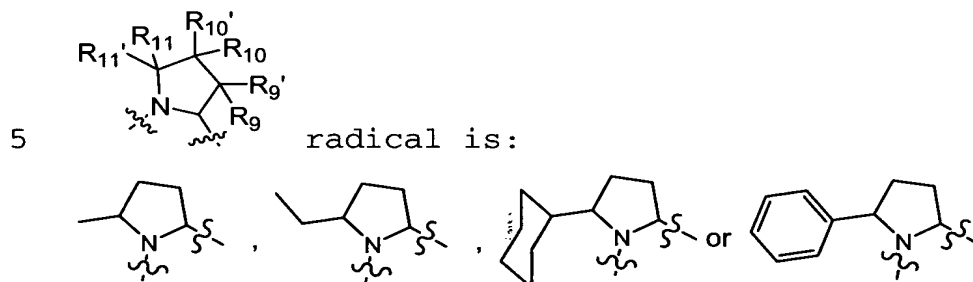
(C6-C10)-aryl-,

wherein any ring is optionally fused to a (C6-C10)aryl, (C5-C10)heteroaryl, (C3-C10)cycloalkyl, or (C3-C10)heterocyclyl;

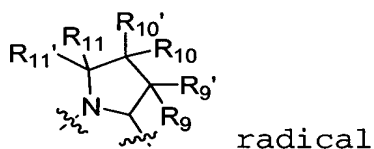
10 wherein up to 3 aliphatic carbon atoms in R₁₁' may be replaced by a heteroatom selected from O, NH, S, SO, or SO₂ in a chemically stable arrangement;

wherein R_{11}' , is independently and optionally substituted with up to 3 substituents independently selected from J.

26. The compound according to claim 25, wherein the formula I, the



27. The compound according to any one of claims 1-15, wherein in the



R_9 , R_{10} , R_{11} , and R_{11}' are H; and

R_9' and R_{10}' are:

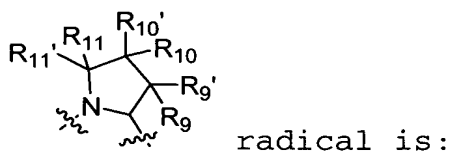
(C1-C12)-aliphatic-,

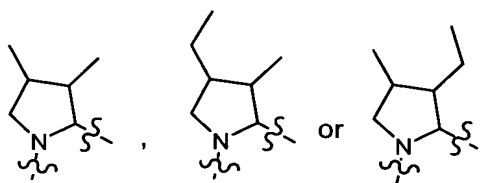
(C3-C10)-cycloalkyl- or -cycloalkenyl-,

wherein up to 3 aliphatic carbon atoms in R_9' and R_{10}' may be replaced by a heteroatom selected from O, NH, S, SO, or SO₂ in a chemically stable arrangement; and

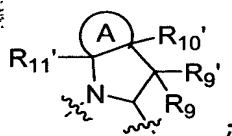
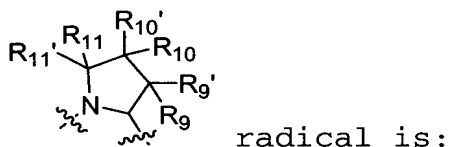
wherein R_9' and R_{10}' are independently and optionally substituted with up to 3 substituents independently selected from J.

28. The compound according to claim 27, wherein the





29. The compound according to any one of claims 1-15, wherein the



wherein;

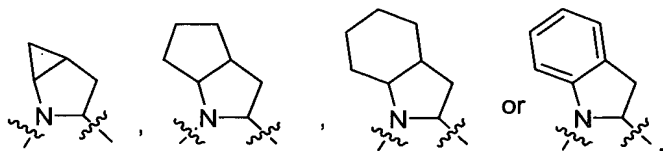
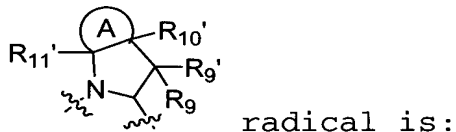
ring A is a 5- to 6-membered aromatic or a 3- to 7-membered non-aromatic ring system having up to 3 heteroatoms independently selected from N, NH, O, SO, or SO_2 ;

wherein said ring A is optionally fused to a (C6-C10)aryl, (C5-C10)heteroaryl, (C3-C10)cycloalkyl, or (C3-C10)heterocyclyl;

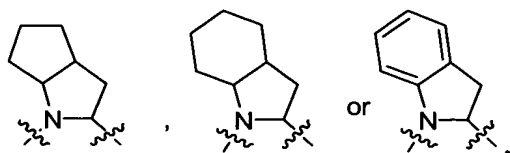
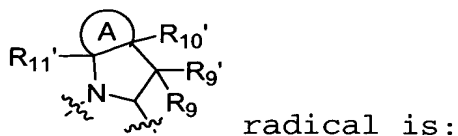
wherein any ring has up to 3 substituents selected independently from J; and

R_9 , R_9' , R_{10} , and R_{10}' are as defined in claim 1.

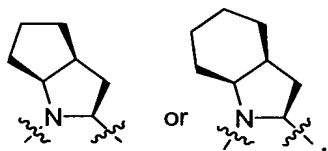
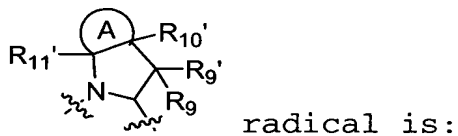
30. The compound according to claim 29, wherein the



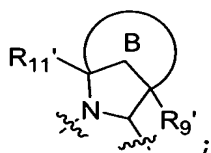
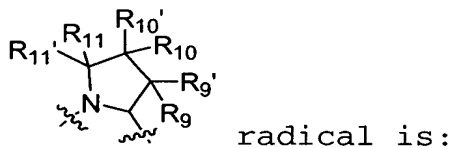
31. The compound according to claim 30, wherein the



32. The compound according to claim 31, wherein the



33. The compound according to any one of claims 1-15, wherein the



wherein:

ring B forms a 3- to a 20-membered carbocyclic or heterocyclic ring system;

wherein each ring B is either aromatic or nonaromatic;

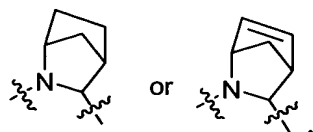
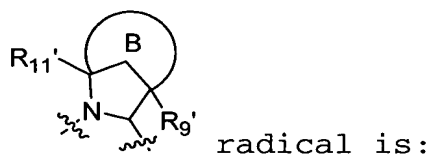
wherein each heteroatom in the heterocyclic ring system is N, NH, O, SO, or SO₂;

wherein ring B is optionally fused to a (C₆-C₁₀)aryl, (C₅-C₁₀)heteroaryl, (C₃-C₁₀)cycloalkyl, or (C₃-C₁₀)heterocyclyl;

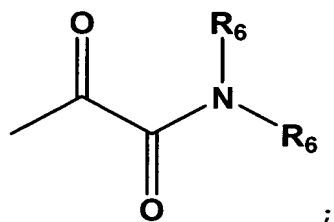
wherein each ring has up to 3 substituents selected independently from J; and

R₉' and R₁₁' are as defined in claim 1.

34. The compound according to claim 33, wherein the

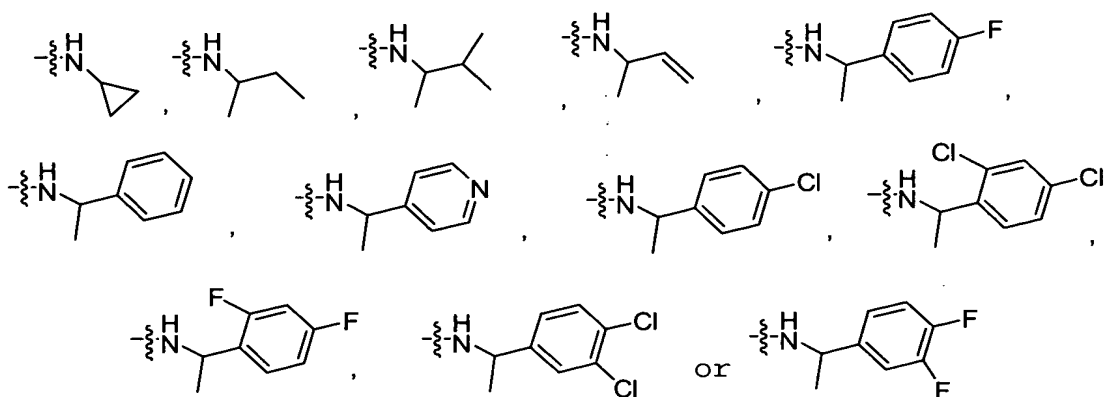


35. The compound according to any one of claims 1-34, wherein W is:

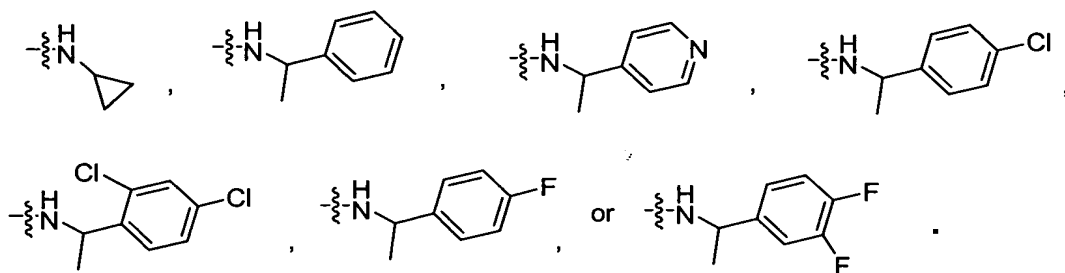


wherein in the W, the NR₆R₆ is selected from -NH-(C1-C6 aliphatic), -NH-(C3-C6 cycloalkyl), -NH-CH(CH₃)-aryl, or -NH-CH(CH₃)-heteroaryl, wherein said aryl or said heteroaryl is optionally substituted with up to 3 halogens.

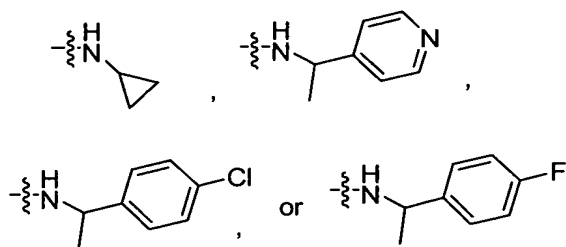
36. The compound according to claim 35, wherein in the W, the NR₆R₆ is:



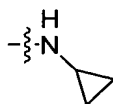
37. The compound according to claim 36, wherein in the W, the NR_6R_6 is:



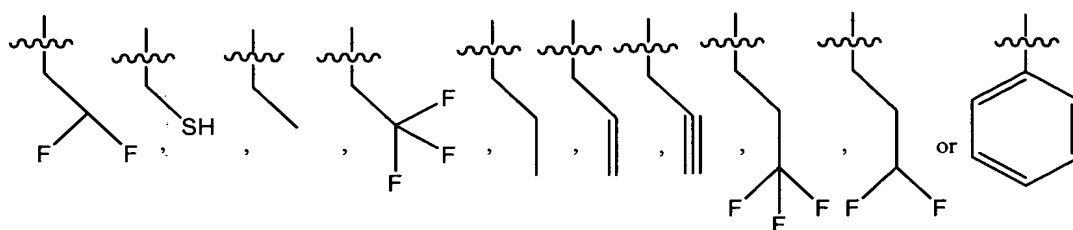
38. The compound according to claim 37, wherein in the W, the NR_6R_6 is:



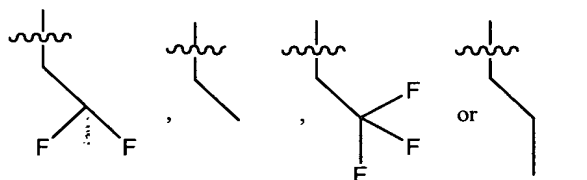
39. The compound according to claim 38, wherein in the W, the NR_6R_6 is:



40. The compound according to any one of claims 1-39, wherein R_5 is hydrogen and R_6 is:



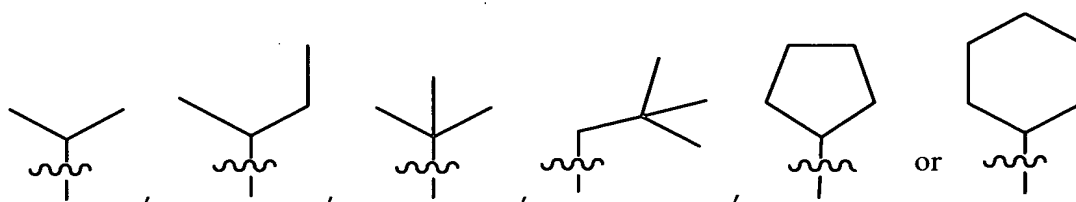
41. The compound according to claim 40, wherein R_5 is hydrogen and R_5 is:



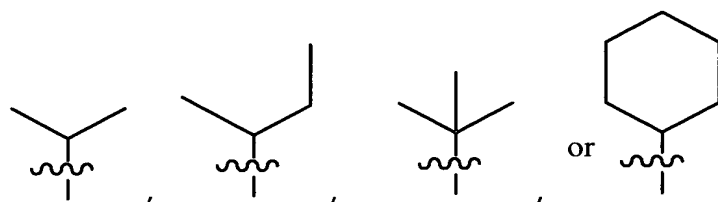
42. The compound according to any one of claims 1-41, wherein R_2 , R_4 , R_7 , and R_{12} are each independently H, methyl, ethyl, or propyl.

43. The compound according to claim 42, wherein R_2 , R_4 , R_7 , and R_{12} are each H.

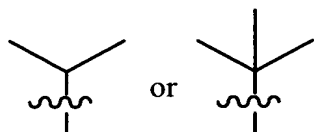
44. The compound according to any one of claims 1-43, wherein R_3 is:



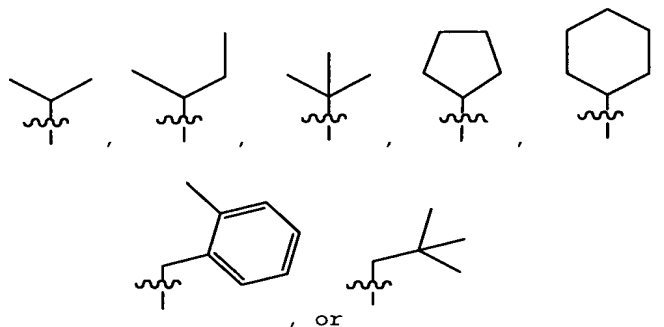
45. The compound according to claim 44, wherein R_3 is:



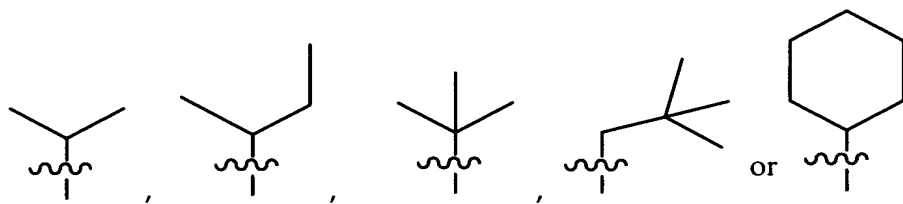
46. The compound according to claim 45, wherein R^3 is:



47. The compound according to any one of claims 1-46, wherein R^1 is:



48. The compound according to claim 47, wherein R_1 is:



49. The compound according to claim 48, wherein R_1 is cyclohexyl.

50. A pharmaceutical composition comprising a compound according to any one of claims 1-49 or a pharmaceutically acceptable salt thereof in an amount effective to inhibit a serine protease; and a acceptable carrier, adjuvant or vehicle.

51. The composition according to claim 50, wherein said composition is formulated for administration to a patient.

52. The composition according to claim 51, wherein said composition comprises an additional agent selected from an immunomodulatory agent; an antiviral agent; a second inhibitor of HCV protease; an inhibitor of another target in the HCV life cycle; and a cytochrome P-450 inhibitor; or combinations thereof.

53. The composition according to claim 50, wherein said immunomodulatory agent is α -, β -, or γ -interferon or thymosin; said antiviral agent is ribavirin, amantadine, or telbivudine; or said inhibitor of another target in the HCV life cycle is an inhibitor of HCV helicase, polymerase, or metalloprotease.

54. The composition according to claim 52, wherein said cytochrome P-450 inhibitor is ritonavir.

55. A method of inhibiting the activity of a serine protease comprising the step of contacting said serine protease with a compound according to any one of claims 1-49.

56. The method according to claim 55, wherein said serine protease is an HCV NS3 protease.

57. A method of treating an HCV infection in a patient comprising the step of administering to said patient a composition according to claim 51.

58. The method according to claim 57, comprising the additional step of administering to said patient an additional agent selected from an immunomodulatory agent; an antiviral agent; a second inhibitor of HCV protease; an inhibitor of another target in the HCV life cycle; or combinations thereof; wherein said additional agent is administered to said patient as part of said composition according to claim 51 or as a separate dosage form.

59. The method according to claim 58, wherein said immunomodulatory agent is α -, β -, or γ -interferon or thymosin; said antiviral agent is ribavarin or amantadine; or said inhibitor of another target in the HCV life cycle is an inhibitor of HCV helicase, polymerase, or metalloprotease.

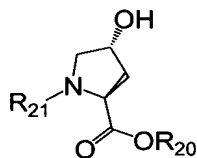
60. A method of eliminating or reducing HCV contamination of a biological sample or medical or laboratory equipment, comprising the step of contacting said biological sample or medical or laboratory equipment with a composition according to claim 50.

61. The method according to claim 60, wherein said sample or equipment is selected from blood, other body fluids, biological tissue, a surgical instrument, a surgical garment, a laboratory instrument, a laboratory garment, a blood or other body fluid collection apparatus; a blood or other body fluid storage material.

62. The method according to claim 61, wherein said body fluid is blood.

63. A process for preparing a compound of formula I, as defined in any one of claims 1-49, comprising the

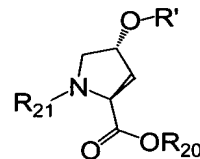
step of: reacting a compound of formula VII in the presence of a compound of formula VIII to provide a compound of formula IX:



VII

R'X

VIII



IX

wherein:

R₂₁ is an amine protecting group, a P3- residue of an HCV protease inhibitor described herein, or a P4-P3- residue of an HCV protease inhibitor as described herein, and wherein the P3 and the P4-P3 residues are optionally protected with an amino-terminal capping group;

R₂₀ is a carboxy protecting group or a P1 residue of an HCV protease inhibitor described herein, wherein the P1 residue is optionally protected with a carboxy terminal protecting group or with W; R' is as defined in claim 1; and X is an appropriate leaving group.